

State of California
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER NO. R4-2006-XXXX AMENDING
ORDER NO. R4-2006-0009

**WASTE DISCHARGE AND WATER RECYCLING REQUIREMENTS
FOR
WEST COAST BASIN BARRIER PROJECT – EXPANSION PHASE III PROJECT**

ISSUED TO

**West Basin Municipal Water District and
Los Angeles County Department of Public Works**

(File No. 93-009)

[Additions to the Order have been underlined. Deletions to the Order have been lined through.]

The California Regional Water Quality Control Board, Los Angeles Region (hereafter Regional Board) finds:

PURPOSE OF AMENDMENT TO ORDER NO. R4-2006-0009

- On September 30, 2005, attorneys for the Water Replenishment District of Southern California, WaterReuse Association, and County Sanitation Districts of Los Angeles County filed a petition with the State Water Resources Control Board (State Board) challenging the Regional Board's Water Recycling Requirements (WRRs) (Order No. R4-2005-0061) for the Alamitos Barrier Project, adopted by the Regional Board on September 1, 2005. The challenge concerned the single issue of the appropriateness of the Regional Board adopting the California Department of Health Services' Notification Levels, which are Chemicals of Concerns to the Regional Board, as enforceable effluent limitations in the WRRs.
- On April 5, 2006, the State Board issued Order No. WQ-2006-0001 which effectively removed the subject effluent limitations.
- Similar effluent limitations were adopted by the Regional Board on January 19, 2006 in the WDRs/WRRs for the West Coast Basin Barrier Project, Order No. R4-2006-0009. On February 23, 2006, attorneys for the West Basin Municipal Water Districts and Los Angeles County Department of Public Works filed a petition with the State Board making a similar challenge to the Regional Board's adoption of Notification Levels as enforceable effluent limitations. The Regional Board, in a letter dated April 11, 2006, requested that the State Board remands Order No. R4-2006-0009 back to the Regional Board in order to modify it to remove the effluent limitations based upon Notification Levels, consistent with State Board Order WQ-2006-0001. By a letter dated May 24, 2006, the State Board remanded back the Order, and the petition was subsequently dismissed.

- Therefore, the purpose of this amendment is to remove the effluent limitations based upon Notification levels, consistent with State Board Order No. WQ-2006-0001.

INTRODUCTION

1. Through continued effective operation of the West Coast Basin Barrier Project with injection of potable water into the West Coast Basin Barrier (Barrier, see Finding No. 10) since 1964, the Barrier has been established to prevent seawater intrusion and replenish aquifers.
2. The current Phases of the Project continuously conserve potable water during droughts, water rationing, competition for potable water, and increasing demands (particularly in the 1990s) by using recycled water, while continuously preventing sea water intrusion of groundwater and by replenishing aquifers as resources of water supply for domestic purposes.
3. By their advances in water treatment technology, the West Basin Municipal Water District (District, see Finding No. 6) has been injecting the reverse osmosis-treated recycled water (RO recycled water replacing potable water) produced at the West Basin Water Recycling Plant (Plant, see Finding No. 16) into the Barrier for the West Coast Basin Barrier Project through two phases since 1995, which are as follows:
 - A. Phase I (Order No. 95-014, adopted by the Regional Board on January 23, 1995) – The amount of RO recycled water injected into the Barrier was not to exceed 5 million gallons per day (MGD) (approximately 5,600 acre feet per year (AFY)) and 50% of the total blended water injected.
 - B. Phase II (Order No. 97-069, adopted by the Regional Board on May 12, 1997) – The amount of RO recycled water injected into the Barrier was not to exceed 7.5 MGD (approximately 8,400 AFY) and 50% of the total blended water injected.
4. The District proposes the West Coast Basin Barrier Project – Expansion Phase III Project (Expansion Phase III Project), which increases the amount of RO recycled water injected into the Barrier from 7.5 MGD to 12.5 MGD (approximately 14,000 AFY) for the initial operating period. It must not exceed 75% of the total blended water injected. Following the successful completion of the initial operating period (see Section IV.1.), the amount of RO recycled water injected into the Barrier will be ultimately increased to 17.5 MGD (approximately 19,600 AFY), which will be the 100% RO recycled water injection project.
5. The Expansion Phase III Project is the first (and the cornerstone of an one hundred percent RO recycled water injection project) and is one of three Groundwater Recharge Reuse Projects designed to prevent seawater intrusion, conserve potable water, and artificially replenish groundwater resources in the Los Angeles Region. The other two projects are the Harbor Water Recycling Project – Dominguez Gap Barrier Project (Order No. R4-2003-0134, adopted by the Regional Board on October 2, 2003) and the Alamitos Barrier Recycled Water Project (Order No. R4-2005-0061, adopted by the Regional Board on September 1, 2005). These two projects are 50% RO recycled water injection projects.

PROJECT SPONSORS

6. **The West Basin Municipal Water District (District)** manages the West Coast Groundwater Basin located in Los Angeles County. The District sponsors, owns, manages, and leads the West Coast Basin Barrier Project and the Expansion Phase III Project, and currently purchases potable water from the Metropolitan Water District of Southern California (MWD). This potable water is a blend of imported water consisting of Colorado River water and State Project water that is filtered and treated by the MWD at their Jensen, Diemer, and Weymouth Treatment Plants. The District owns the site of the West Basin Water Recycling Plant (Plant, see Finding No. 14) on which the advanced wastewater treatment facilities were built. The District is the purveyor of the RO recycled water produced at the Plant.
7. **The Los Angeles County Department of Public Works, Hydraulic/Water Conservation Division (LACDPW)** currently operates the Barrier and continues to operate and maintain the existing water transmission pipeline, distribution header, injection wells, and monitoring wells located along the Barrier.

REGULATORY AGENCIES

8. The Los Angeles Regional Water Quality Control Board (Regional Board) is the permitting agency for this Project involving the use of RO recycled water for groundwater direct injection. This Regional Board issues Waste Discharge Requirements (WDRs) and Water Recycling Requirements (WRRs) to assure that this Project does not adversely affect groundwater quality.
9. The California Department of Health Services (DHS) is the agency with the primary responsibility for establishing criteria, under Title 22 of the Code of Regulations, to protect the health of the public using the groundwater basins as a source of potable water and to protect the water quality in the receiving aquifers, and the Regional Board is guided by DHS' requirements. DHS has provided comments to the Regional Board, which have been incorporated into these requirements.

PURPOSE OF ORDER

10. On June 20, 2005, the District submitted a Report of Waste Discharge (ROWD) to this Regional Board and applied for WDRs and WRRs, pursuant to California Water Code section 13522.5, for the WCBBP.
11. This Order is the reissuance of WDRs and WRRs to the two proponents (collectively referred hereinafter as Project Sponsors) described above for the Expansion Phase III Project, pursuant to California Water Code section 13523.1. The Project Sponsors are both individually, and collectively, responsible for compliance with the requirements in this Order.

WEST COAST BASIN BARRIER PROJECT – EXPANSION PHASE III PROJECT

12. **West Coast Groundwater Basin (Basin) and West Coast Basin Barrier (Barrier)**

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- A. The Basin* located in the southwestern Los Angeles Coastal Plain consists of five principal aquifers, Gardena, 200-Ft Sand, 400-Ft Gravel, Silverado, and Low San Pedro, which form a complex series of interconnected sand and gravel deposits. In general, the aquifers of the Basin are in hydraulic continuity with the Pacific Ocean. Prior to the extraction of groundwater from wells, subsurface flow occurs between the Pacific Ocean and aquifers of the Basin with the direction of flow towards to the Pacific Ocean. Decades of over pumping caused the groundwater levels in the Basin of Los Angeles County to drop, resulting in a loss of groundwater storage capacity and seawater intrusion into the potable aquifers, such as the Silverado Aquifer, which underlies most of the Basin and provides the majority of the domestic groundwater production.

*: The Basin is an important source of local groundwater, which provides 20% of the water demands in the region. The District provides 80% of the water used in the District's service area serving a population of 830,000 people.

- B. The Los Angeles Coastal Plain covers approximately 480 square miles and is bordered by the Santa Monica Mountains to the north, the Pacific Ocean to the south and west, the Merced and Puente Hills to the northeast, and the Los Angeles/ Orange County line to the southeast. This last boundary is more of an institutional border than a physical one; the geology is such that the groundwater basin is hydrologically continuous across this border into Orange County. Faults in the Coastal Plain break the continuity of geologic formations and thus, alter the flow characteristics in the aquifers. The Newport-Inglewood Uplift separates the Coastal Plain into two groundwater basins, the West Coast and Central Basins.
- C. The Barrier is designed to protect the Basin from seawater intrusion through creation of a pressure ridge by injection of water into the Barrier through an alignment of 153 injection wells located approximately 0.4 to 1.9 miles inland parallel to the Santa Monica Bay coastline from Los Angeles International Airport to the Palos Verdes Hills (Figure P1 depicts the vicinity map of the Barrier). The pressure ridge assures that groundwater will flow from the ridge toward the Pacific Ocean, thereby assuring that seawater cannot flow inland through the exposed aquifers. The failure to maintain an effective seawater intrusion barrier would cause serious water quality degradation in drinking water aquifers located in southwestern Los Angeles County, and the potential loss of this water resource.
- D. The Barrier is located in the western portion of the Basin within Hydraulic Unit 405.12, belonging to the Los Angeles-San Gabriel Hydraulic area. Along the coast, the Barrier is bounded to the north by the Ballona Escarpment, to the west by the Santa Monica Bay, to the southwest by Palos Verdes Hills, to the south by the San Pedro Bay, and to the east by the Newport-Inglewood Uplift depicted in Figure P1.
- E. In the vicinity of the Barrier, there are three water-bearing units, which are subject to seawater intrusion. These include the 200-foot Sand near surface and in order from the near surface to bottom, Silverado, and Lower San Pedro Aquifers. The geological cross section for these aquifers is illustrated in Figure P2.

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13. **Injection Water** – Since 1995, the RO recycled water, and the potable imported water (State Water Project and/or Colorado River) purchased by the District from the Metropolitan Water District of Southern California (MWD) were injected into the Barrier. For the ten-year period between 1995 Water Year to 2004 Water Year, imported water injected ranged from 2.0 to 16.8 MGD, with a historic maximum (between 1964 to 1989) of approximately 36.8 MGD. The amount of RO recycled water injected has historically averaged approximately 43% of the total recharge. Approximately 4.1 MGD of imported water is currently discharged into the Barrier (based on Fiscal Year 04-05 records that include a month-long period when the Barrier was down for maintenance).
14. The Expansion Phase III Project proposes some changes and upgrades on injection facilities of the existing project (Phase II). These changes and upgrades are outlined in Finding No. 16.B. The Expansion Phase III Project will treat wastewater to meet drinking water standards and other limits imposed on RO recycled water intended for groundwater direct injection and indirect potable reuse.
15. **Source and Treatment of Secondary-Treated Effluent Water**
 - A. The source of the injection water is the secondary wastewater-treated effluent generated at the Hyperion Treatment Plant (Hyperion). Hyperion is a publicly owned treatment work (POTW) located at 12000 Vista Del Mar Boulevard, Playa Del Rey, California 90293 (see Figure P1 for vicinity map). Hyperion has an average dry weather design treatment capacity of 450 MGD. In 2004, Hyperion discharged 315 MGD of secondary treated municipal wastewater to the Pacific Ocean under a National Pollutant Discharge Elimination System (NPDES) permit (No. CA0109991), issued by this Regional Board.
 - B. Hyperion treats sludge and wastewater from industrial, commercial and residential sources from the City of Los Angeles (85%) and adjacent cities and agencies (15%) in compliance with 40 Code of Federal Regulations Part 403 and the NPDES permits for Hyperion and other POTWs.
 - C. Treatment at Hyperion consists of preliminary, primary, and secondary treatments. Figure P3 depicts the flow diagram of the treatment process. Preliminary treatment at the headworks removes coarse particles and debris from the wastewater. The primary settling tanks remove the majority of the organic and inorganic suspended solids. Secondary treatment uses the activated sludge process and consists of aeration basins where most of the total organic carbon is removed by microorganisms, followed by clarifiers that remove most of the microorganisms and suspended inorganic solids.
 - D. Solids recovered from wastewater treatment processes include grit, primary screenings, primary sludge and skimmings, thickened waste activated sludge, digested sludge screenings and digester cleaning solids. The fine solids (grit, primary screenings, digested sludge screenings, and digester cleaning solids) that consist of primarily inorganic materials are hauled away to landfills. The remaining solid (primary sludge and skimmings, and thickened waste activated sludge) are anaerobically digested onsite.

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- E. The City of Los Angeles Bureau of Sanitation (City) maintains a comprehensive Industrial Pretreatment and Source Control Program (Program*) approved by the U.S. Environmental Protection Agency for control of waste discharges from industrial sources into the wastewater collection system. The City is responsible for collecting all water quality samples of the treated effluent to fulfill the requirements of its NPDES permits issued by the Regional Board. On May 19, 2004, the City agreed to investigate the industrial sources of perchlorate, NDMA, and 1,4-dioxane. The City also agreed to work cooperatively with the District to develop the Source Control Implementation Plan for increased source control investigation.

*: This Program minimizes the risk that wastewater treated at Hyperion will be contaminated with toxic chemicals in order to protect the treatment facilities and receiving water beneficial uses. The scope and purpose of this Program needs to be supplemented by the approved Source Control Implementation Plan (SCIP) to include not only contaminants that may be detrimental to the facilities and the environment, but also include contaminants specified by the DHS that may be harmful to human health and drinking water supplies. The supplement to the Program will be administered locally solely for the purpose of addressing Expansion Phase III Project's water quality needs and does not require modification of the existing EPA approved and enforced program. The existing Program does not address all contaminants that have drinking water maximum contaminant levels. The District, through a comprehensive monitoring program defined in the SCIP, will be able to reasonably ensure that the recycled water produced at the Plant for recharge into the groundwater basins via injection at the Barrier is not contaminated with toxic chemicals of industrial origins that are of concern to the DHS and the Regional Board. The District agreed to develop the SCIP in consultation with the City, based upon a cooperative Memorandum of Agreement between them specifying responsibility of the SCIP. The SCIP was provided to the DHS in March 2005. DHS approved the SCIP in October 2005. The Memorandum of Agreement (MOA) will be agreed and signed by the City and the District during Phase III implementation and prior to the injection of 100% recycled water.

16. **West Basin Water Recycling Plant (Plant)**

- A. The Plant has been in service since 1995 and is located at 1935 Hughes Way, El Segundo, California 90245 (Figure P1). Approximately 35 MGD of secondary-treated effluent from Hyperion will receive additional treatment at the District's Plant. The Plant consists of three treatment trains currently designed to produce a total up to 41.8 MGD of recycled water, including 30 MGD of Title 22 recycled water for landscape and agricultural irrigation and industrial applications, 7.5 MGD of RO recycled water for the Barrier injection, and 4.3 MGD of both once and twice-treated RO recycled water for the boiler feed system located at the Chevron Refinery in El Segundo.
- B. At the Plant, the Expansion Phase III Project is designed to produce approximately 19,600 AFY (17.5 mgd) of RO treated recycled water for the Barrier injection through a two-stage operation. The first stage of the Expansion Phase III Project will increase RO recycled water production and injection into the Barrier up to 12.5 mgd for the initial operation period. During this initial stage, approximately 5 mgd of imported potable water will be blended with the RO recycled water supply and injected into the Barrier. Pending

DHS approval, the District proposes to implement a second stage to increase RO recycled water production and injection into Barrier up to 17.5 mgd. The Expansion Phase III Project consists of four major components and will be located at the same site as the existing project (Phase II) in El Segundo:

- a. Replacement of the existing lime clarification pretreatment system with a microfiltration pretreatment system;
- b. Utilization of thin film composite membranes for all reverse osmosis treatment trains;
- c. Installation of UV light disinfection and nitrosodimethylamine (NDMA) destruction of the total barrier recycled water flow stream; and,
- d. Addition of hydrogen peroxide storage and feed facilities, which, in conjunction with UV disinfection, will provide advanced oxidation.

During construction of the Expansion Phase III Project, the existing project (Phase II) will remain in operation to supply RO recycled water to the Barrier.

- C. Figure P4 presents the schematic of the RO treatment train for the Barrier injection at the Plant. It is comprised of the following:

- a. **Automatic Strainers:** The Automatic Strainer is used to protect downstream membrane treatment systems from large particles. The secondary-treated feedwater generated at Hyperion will pass through automatic in-line strainers and be chloraminated prior to microfiltration. Fine solids that are captured will be returned to the existing dewatering holding basin at the Plant.
- b. **Microfiltration (MF):** MF is used to reduce the turbidity and silt density of the effluent of the automatic strainers prior to RO for increased system reliability and reduced RO membrane fouling. The MF units are periodically back-washed to clean the membranes. The backwash waste is sent back to the equalization basin and then pumped to the solids handling system.
- c. **Reverse Osmosis (RO):** The MF filtrate is fed into RO process trains that uses thin film membranes under Phase III of this Project, with a normal permeate capacity of 12.5 and ultimately 17.5 MGD. The RO removes salts, minerals, metal ions, organic compounds, and microorganisms, which are commonly called a brine stream. This brine stream is piped back to Hyperion where it will be recombined with the 315 MGD effluent (this number fluctuates according to Hyperion), and eventually be discharged into the Pacific Ocean through the Hyperion's 5-mile outfall diffuser system under a separate NPDES permit.
- d. **Advanced Oxidation Process (AOP):** The AOP will consist of two steps: hydrogen peroxide will be added to the RO permeate upstream of UV light treatment. UV irradiation can be used for adequate disinfection and reduction of light-sensitive contaminants. Hydrogen peroxide exposed to UV irradiation

produces hydroxyl radicals that result in advanced oxidation. The AOP system is designed and constructed to adequately disinfect RO permeate and reduce NDMA levels to a concentrations below 10 ng/L. The hydrogen peroxide dosage will be optimized during operations and maintenance per DHS requirements.

The District conducted an **AOP Study**. The water quality produced by the MF/RO/AOP treatment train is representative of that anticipated from the Expansion Phase III Project. Water quality data from the MF/RO/AOP train indicate that the RO recycled water of the Expansion Phase III Project will meet all requirements of the California Drinking Water Primary and Secondary Maximum Contaminant Levels (MCLs), and ~~Chemicals of Concern to the regional Board~~Notification Levels. Data from the MF/RO train also have indicated that selected pharmaceutically active compounds and other toxic contaminants not included in the drinking water standards are removed or reduced to low levels in the RO recycled water. The AOP was recommended by the Expert Panel as an added barrier for unknown contaminants and for the destruction of NDMA.

- e. **Post-Decarbonation:** The influent of the RO-treated effluent passes through a decarbonator to release excess carbon dioxide.
- f. **Lime Stabilization:** Product water from UV system is combined and lime (calcium hydroxide) will be added to adjust the pH and reduce the potential for minerals to be leached from the cement lining used in the transmission pipeline, which would affect the integrity of the transmission pipelines.
- g. **Barrier Water Pump Station:** Two new pumps, one duty and one standby unit, will be added at the existing Barrier Water Pump Station.
- h. **Solids Handling Process:** Upgrades will be made to increase the capacity of the existing solids handling systems, which consist of the dewatering holding basin and washwater equalization basin serving the barrier water treatment processes. Solids will be removed using high-rate clarifiers, thickened using gravity thickeners, and dewatered using plate-and-frame presses. The recovered liquid stream will be returned to the Title 22 Plant for treatment. Dewatered cake solids will be hauled for beneficial use or to a landfill for disposal or for beneficial use.

The proposed Expansion Phase III Project complies with Section 60320 of Article 5.1, entitled “Groundwater Recharge”, of the California Code of Regulations Title 22, Division 4, Chapter 3, entitled “Water Recycling Criteria.” The DHS considers the above treatment to be the best available treatment technology for recycled water used for groundwater recharge by direct injection.

- 17. **Transmission System of RO Recycled Water** – The RO recycled water will be delivered from the barrier water pump station, through the blend station, to the barrier injection wells. The transmission line leaves the Plant at the northeast corner of the Plant, runs through the golf course parallel to the Southern California Edison’s (SCE) right-of-way, and then turns toward the north across the SCE right-of-way and the Hughes’ property to El Segundo Boulevard. The line then runs east along El Segundo Boulevard for approximately 2,000 feet

to the Barrier Blend Station.

18. **Barrier Blend Station** – The Barrier Blend Station is the point where the RO recycled water from the Plant mixes with the potable water from MWD on its way to the barrier injection system. The MWD delivery system will be protected by an above-grade, backflow prevention system installed in the Los Angeles County Department of Public Works' potable water feed line as a method of in-line protection. Backflow prevention consists of two identical parallel pipe trains with double check valves in series. From the Barrier Blend Station, RO recycled water splits into two streams to be blended with the existing potable water from MWD. One blended stream is injected into the North barrier wells and the other stream into the South barrier wells.

19. **Barrier Pipelines and Injection Wells**

- A. The West Coast Basin Barrier Project consists of two sections of pressurized pipelines. The northern section of the barrier pipeline runs south from Los Angeles International Airport to Hermosa Beach. The southern section of the barrier pipeline begins approximately 1,000 feet south of the northern section and continues southward to the Palos Verdes Hills. The size of the barrier pipeline ranges from 8 inches to 18 inches.
- B. The pipelines and injection wells are primarily located in the Cities of El Segundo, Manhattan Beach, Hermosa Beach, and Redondo Beach, California. The injection wells are screened at selected depths ranging from 280 feet to 700 feet below ground surface (bgs) to allow water injection into three different aquifers, 200-ft Sand, Silverado, and Low San Pedro Aquifers. Two types of injection wells were constructed at the Barrier: single and dual. Total diameter of the borehole is approximately 32 inches. Injection wells are equipped with a 36-inch-diameter protective casing and a 12-inch-diameter, asbestos-cement pipe casings screened at one or two intervals.

No changes are proposed to the existing distribution system or Barrier injection facilities, which inject either 100% potable, potable-RO recycled water, or 100% RO recycled water through the LACDPW operation.

- C. Of the 153 existing injection wells shown in Table P1 of Attachment A-1, 143 are single injection wells, injecting only into either 200-ft, Silverado or Low San Pedro aquifer. Another 10 are dual injection wells, injecting separately into the 200-ft and Silverado aquifers. Distances between injection wells vary between approximately 200 feet to 1,000 feet, for a total span of approximately 9 miles. There are no changes proposed to any existing extraction wells located seaward of the injection wells.

20. **Groundwater Monitoring Wells**

- A. Eight existing groundwater monitoring wells have monitored the groundwater near the Barrier since 1995. One new nested monitoring well was recently installed for the Expansion Phase III Project and monitors each of the three aquifers. The new monitoring well was constructed in Redondo Beach along the same flow path from the Barrier as existing monitoring Well Nos. 17B and 17C. The new multi-depth monitoring well in Figure P5 is be located at the approximately projected three-month underground travel time from the Barrier towards east and will sample the same aquifers recharged by

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the injection wells. The following nine monitoring wells in Table P1 will be used to detect, track, and monitor the underground movement of the recharge water towards the nearest active drinking water production Manhattan Beach Well No. 11a, and the water quality of various aquifers comprising the groundwater basins for compliance purposes.

Table P1 – Monitoring Wells		
Well No.	Distance from Barrier	Aquifer(s) Monitored and Perforations
WB-1	≤ 100 feet east	200-Ft/Silverado/Lower San Pedro
9B	2162 feet east	Silverado
14B	1850 feet east	Silverado (-197 ~ -212) (-237 ~ -327)
17B	566 feet east	200-Foot Sand/Silverado (-150 ~ -480)
17C	566 feet east	Lower San Pedro (-515 ~ -540) (-595 ~ -655)
690A	450 feet east	200-Foot Sand/Silverado (-23 ~ -183)
703G	391 feet east	Silverado (-153 ~ -263)
735A	3075 feet east	Lower San Pedro (-536 ~ -586)
1318N	2866 feet east	200-Foot Sand (-34 ~ -54)

B. The estimated underground travel time to the new monitoring well is approximately three months. Along this same flow path, the estimated underground travel time to monitoring Well Nos. 17B and 17C, is two to three years. These estimates are based on sampling and analysis of naturally occurring, intrinsic tracer constituents in the injected recycled water, such as chloride. A study entitled “Naturally Occurring Tracer Constituents in Water Injected for Maintenance of the West Basin Seawater Intrusion Barrier” prepared by McGuire Environmental Consultants, concluded that “naturally existing anions and their ratios should function as adequate tracers of groundwater movement for water injected into seawater intrusion barriers due to the distinct characteristics of the various source waters.”

21. **Groundwater Quality Monitoring** – A detailed review of groundwater quality data provided in Annual Reports from 2000 to 2004 collected from the eight existing groundwater monitoring wells shows that the receiving groundwater quality is good and in compliance with MCLs and Basin Plan groundwater quality objectives, in general.

An exception is Well No. 735A, located approximately 3,075 feet east of the Barrier. Well No. 735A shows high concentrations of total dissolved solids (8,600 to 12,000 mg/L), chloride (4,260 to 6,073 mg/L), and sulfate (660 to 760mg/L). The concentrations of these constituents in the blended water are 229 to 360 mg/L, 46 to 69 mg/L, and 39 to 97 mg/L, respectively. Therefore, the high concentrations of total dissolved solids, chloride, and sulfate detected at Well No. 735A did not result from the West Coast Basin Barrier Project.

22. **Projected Travel Times and Dilutions to Nearest Production Wells** – In the 1993 Engineering Report, CH2M Hill used the Coupled Flow Energy and Solute Transport (CFEST) model to verify travel times and percentages of the RO recycled water in the 200-Ft, Silverado, and Low San Pedro aquifers from the Barrier to the nearest production wells. The simulation results are in Table P2 and Table P3 for travel times and percentages, respectively.

- A. **Travel Times** – Table P2 indicates the different maximum travel distances of blended water in the different aquifers over 1, 5, and 20 years. The blended water will only travel approximately 0.2 to 0.3 miles (1,060 to 1,580 feet) in the different aquifers over one year and will be retained in the different aquifers for approximately 15 to 20 years prior to being extracted at the currently existing, nearest production wells.

Table P2 – Travel Times vs. Distances of 50% Blended Water in Different Aquifers between Barrier and Nearest Production Wells				
Aquifer	1 year	5 years	20 years	Time to nearest production well
200-Ft	0.3 mile	1.0 mile	3.0 mile	20 years
Silverado	0.2 mile	0.8 mile	2.5 mile	15 – 20 years
Lower San Pedro	0.3 mile	1.1 mile	2.5 mile	15 years

- B. **Percentages** – Table P3 indicates 20% of injected blended water (50% RO recycled water, Phase I) in the different aquifers after 5, 10, and 20 years of injection. The percentage of injected blended water in production wells after 20 years of injection is estimated to range from 40% to less than 20%. The CFEST simulation results indicate that even when 100% RO recycled water is injected, less than 50% of RO recycled water will be extracted from production wells within 20 years of injection.

Table P3 – 20% of Blended/Injected Water (Phase I) in Different Aquifers between Barrier and Nearest Production Wells				
Aquifer	5 year	10 years	20 years	Time to nearest production well
200-Ft	0.7 mile	1.1 mile	1.8 mile	20 years
Silverado	0.9 mile	1.3 mile	2.2 mile	15 – 20 years
Lower San Pedro	1.2 mile	1.7 mile	2.8 mile	15 years

- C. **Nearest Well Travel Time** – The nearest active domestic well to the Barrier is Manhattan Beach Well No. 11a, which is owned and operated by the City of Manhattan Beach and is located 7,400 feet (1.4 mile) to the east of the Barrier. The rate of groundwater movement eastward from the Barrier is estimated to be 300 to 500 feet per year. This domestic water production well is more than a projected 15 years underground travel time from the Barrier. This indicates that injected water will remain in the underground for greater than one year before reaching the nearest potable water well, which is a requirement of this permit. In addition, less than 50% of RO recycled water will be extracted at Manhattan Beach Well No. 11a after 20 years.

DHS has accepted the use of intrinsic tracers based on a letter submitted to the District on November 19, 2004 for a six-month trial period. The final determination of the District tracer program will be made following submittal and review of the data.

23. **Recycled Water Quality for Groundwater Injection**

- A. Results of monitoring reports indicate that the product water will meet all requirements of the California Drinking Water Primary and Secondary Maximum Contaminant Levels

(**MCLs**). The AOP Study (see Finding No. 16.C.d) also has indicated that selected pharmaceutically active compounds and other toxic contaminants not included in the drinking water standards, are removed or reduced to low levels in the product water.

MCLs are health protective drinking water standards adopted by DHS that are to be met by public water systems. MCLs take into account not only the chemicals' health risks but also factors such as their detectability and treatability, as well as the costs of treatment. More information, such as DHS' process for establishing MCLs, is available in the DHS' website at <http://www.dhs.ca.gov/ps/ddwem/chemicals/chemindex.htm>.

- B. The Monitoring and Reporting Program (MRP) that is part of this Order requires the Project Sponsors to monitor for all constituents of drinking water specified in Chapter 15, Title 22, California Code of Regulations, both regulated and unregulated. For contaminants in concentrations above the MCLs or Public Health Goals (**PHGs**), or for contaminants that do not have MCLs but are in concentrations above the Notification Levels (**NLs**), previously referred to as "Action Levels", the Project Sponsors are required to investigate the cause and implement remedial or corrective actions per the DHS approved SCIP.

PHGs are levels of contaminants in drinking water that pose no significant health risks if water is consumed for a lifetime and are based on risk assessments. They are established by Cal/EPA's Office of Environmental Health Hazard Assessment, pursuant to Health and Safety Code §116365(c), for contaminants with MCLs or for contaminants for which DHS plans to promulgate MCLs. Health and Safety Code §116365(a) requires DHS to establish contaminants MCLs at levels as close as is technically and economically feasible to the contaminants' PHGs. **NLs** are health-based advisory levels established by DHS for contaminants in drinking water with no MCLs. NLs are scientifically calculated using standard risk assessment methods for non-cancer and cancer endpoints, and typical exposure assumptions. Chemicals for which NLs are established may eventually be regulated by an MCL, depending on the extent of contamination, the levels observed, and the risk to human health. More information for drinking regulations for PHGs and NLs is available in the DHS' website at <http://www.dhs.ca.gov/ps/ddwem/chemicals/AL/notificationlevels.htm>.

- C. To address concerns regarding emerging chemicals including endocrine disruptors and pharmaceutically-active chemicals analyzed annually, the MRP also requires the Project Sponsors to conduct quarterly priority pollutants screening and annually tentatively identified chemical analysis (TIC). A TIC is a special analytical procedure to identify and quantify detected compounds that are not on the target list for the specific method being analyzed. Detected peaks that correspond to a compound on the target list will be identified and quantified. Unidentified peaks will be compared with the mass spectrometer reference library containing approximately 75,000 compounds to identify the compound. The DHS has specified some endocrine disrupting chemicals, pharmaceuticals and other chemicals for monitoring (see MRP).

~~D. The Regional Board recognizes that certain chemicals (such as perchlorate, 1,4-dioxane, NDMA*, and 1,2,3-trichloropropane, in Attachment A-8: Chemicals of Concern to the Regional Board) not having MCLs may be a threat to groundwater quality, and that the science surrounding these chemicals is evolving with respect to health threats from~~

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~~these chemicals and possible loss of beneficial uses. Therefore, in order to implement the State Antidegradation Policy, and based upon the best science available, limits have been established for these chemicals based upon the standard risk assessment methods for non-cancer and cancer endpoints, and typical exposure assumptions, including a 2-liter per day ingestion rate, a 70-Kilogram adult body weight, and a 70-year lifetime.~~

~~For emergent chemicals that are not considered carcinogens, the limit is derived from the “No observed adverse effect level” (NOAEL), adjusted by appropriate factors to take into account uncertainties in the available data. The NOAEL threshold level protects the most at risk population of individuals, such as children and older people. An estimate of drinking water’s contribution to total exposure to the emergent chemical is also included.~~

~~For those emergent chemicals that are considered carcinogens, the limit is based upon a “*de minimis*” theoretical lifetime risk of up to one excess case of cancer in a population of one million people.~~

~~As the science continues to evolve, this Permit may need to be updated to reflect the current science.~~

~~*NDMA—Based on the NDMA profile results between 2000 and 2003, provided by the District, the concentrations of NDMA in the RO recycled water were between 26 µg/L and 755 µg/L. Once the UV is online, the concentrations of NDMA in the RO recycled water are expected to be greatly reduced (to less than 10 ng/L).~~

E.D. If the RO recycled water does not meet permit requirements for the injection wells but meets the requirements for discharge from Hyperion to the Pacific Ocean, the RO recycled water can be discharged directly to the Pacific Ocean under Hyperion’s NPDES permit. If the RO recycled water does not meet NPDES permit requirement for the Hyperion discharge to the Ocean, the West Basin Water Recycling Plant for the Expansion Phase III Project will be shut down and any off-spec water in storage will be sent to the head of Title 22 treatment train for treatment.

24. **Contingency Plan** – For the Expansion Phase III Project, the District has developed an Operation, Maintenance, and Monitoring Plan (OMM Plan) that incorporates specific procedures to be followed by operating staff for all potential emergencies or conditions, which might lead to RO recycled water unacceptable for injection. The OMM plan for the Expansion Phase III Project that will be used to ensure that equipment and facilities for treatment and recharge operate at peak performance levels. The OMM Plan was provided to the DHS in October 2005. The DHS approved it with the conditions of some revisions on November 22, 2005.
25. An independent **Expert Advisory Panel** has reviewed the planning and preliminary design of the Expansion Phase III Project. The Expert Advisory Panel prepared a report on their Findings and made Recommendations. The DHS concurs with the Expert Advisory Panel’s Findings and Recommendations.

APPLICABLE PLANS, POLICIES AND REGULATIONS

26. **Basin Plan** – The Regional Board adopted a revised *Water Quality Control Plan for the Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (Basin Plan) on June 13, 1994, and amended by various Regional Board resolutions. This updated and consolidated plan represents the Board’s master quality control planning document and regulations. The Basin Plan (i) designates beneficial uses for surface and groundwater, (ii) sets narrative and numerical objectives that must be attained or maintained to protect the designated (existing and potential) beneficial uses and conform to the State’s antidegradation policy, and (iii) includes implementation provisions, programs, and policies to protect all waters in the Region. In addition, the Basin Plan incorporates (by reference) all applicable State and Regional Board plans and policies and other pertinent water quality policies and regulations. This Order implements the plans, policies, and provisions of the Board’s Basin Plan.

The Basin Plan (Chapter 3) incorporates Title 22 primary MCLs by reference. This incorporation by reference is prospective including future changes to the incorporated provisions as the changes take effect. Also, the Basin Plan specifies that “Ground waters shall not contain taste or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.” However, for the purpose of this Order, odors due to chlorination are acceptable. Therefore the secondary MCLs, which are limits based on aesthetic, organoleptic standards, are also incorporated into this permit to protect groundwater quality.

27. **Title 22 of the California Code of Regulations** – The California Department of Health Services established primary and secondary maximum contaminant levels (MCLs) for inorganic, organic, and radioactive contaminants in drinking water. These MCLs are codified in Title 22, California Code of Regulations (Title 22). Title 22 primary MCLs (see Attachments A-1 to A-5, and A-7) have been used as bases for effluent limitations of the RO recycled water in WDRs and WRRs permit to protect the **Groundwater Recharge** beneficial use when that receiving groundwater is designated as municipal and domestic supply.

Groundwater Recharge – RO recycled water from the District’s Plant through the Barrier enters the west Coast Groundwater Basin. Since ground water from this Basin is used to provide drinking water to 830,000 people, Title 22-based limits are needed to protect that drinking water supply where there is reasonable potential for the contaminant(s) to be present in the injection recharge water. By limiting the contaminants in the RO recycled water injection, the amount of pollutants entering the groundwater basins are correspondingly reduced. Once groundwater basins are contaminated, it may take years to clean up, depending on the pollutant. Compared to surface water pollution, investigations and remediation of groundwater are often more difficult, costly, and extremely slow.

28. **Antidegradation Policy** – On October 28, 1968, the State Board adopted Resolution No. 68-16, *Maintaining High Quality Water*, which established an antidegradation policy for State and Regional Boards. The State Board has, in State Board Order No. 86-17 and an October 7, 1987 guidance memorandum, interpreted Resolution No. 68-16 to be fully consistent with the federal antidegradation policy. As a result, the federal antidegradation policy provides some guidance in interpreting State Board Resolution No. 68-16. The State policy is designed to ensure that a water body will not be degraded resulting from the permitted discharge, except

under the conditions established in the State Antidegradation Policy. The provisions of this Order are consistent with the antidegradation policy.

~~In conformance with State Antidegradation Policy, the Regional Board could choose to adopt limits of “nondetect” for anthropogenic Chemicals of Concern where no scientific or regulatory criteria exist. The Antidegradation Policy is an important regulatory tool for the Regional Board and it provides a backstop where knowledge of contaminants is evolving that requires “the highest water quality consistent with the maximum benefit to the people of the State will be maintained.” (SWRCB Res. No. 68-16, ¶ 3.) The loading of anthropogenic compounds to underground aquifers is particularly problematic. Waste discharged into underground aquifers is technically difficult to remove and can be extremely costly to remediate. Moreover, a contaminated groundwater resource may become unsuitable for beneficial use, and may become unsuitable for a lengthy period of time. As a result, the State Antidegradation Policy’s command to maintain “the highest water quality consistent with the maximum benefit to the people of the State” requires particular sensitivity when considering allowing reclaimed water containing waste to be injected into a groundwater aquifer.~~

~~To maintain the highest water quality, the Regional Board could specify limitations based on the non-detect levels for anthropogenic compounds because that would provide assurance that aquifer’s water quality was being maintained. Instead, Regional Board staff are taking a middle ground and relying on the best available science to maintain the highest water quality consistent with the maximum benefit to the people of the State. Regional Board staff used the existing science, as explained in Finding 23.D., to develop limits protective of beneficial uses of the groundwater based upon their professional judgement. This approach is also consistent with State Board Resolution No. 77-1 (concerning water reclamation) and recognizes the important role the Expansion Phase III Project will play in protecting and enhancing groundwater resources.~~

29. **Beneficial Uses** – In the Basin Plan, the beneficial uses of the West Coast Groundwater Basin are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.
30. The State Board adopted Resolution No. 77-1, Policy with Respect to Water Reclamation in California, which includes principles that encourage and recommend funding for water recycling and its use in water-short areas of the State. On September 26, 1988, the Regional Board also adopted Resolution No. 88-012, *Supporting Beneficial Use of Available Reclaimed Water in Lieu of Potable Water for the Same Purpose*, which encourages the beneficial use of recycled wastewater and supports water recycling projects.
31. Section 13523 of the California Water Code provides that a Regional Board, after consulting with and receiving recommendations from DHS, and after any necessary hearing, shall, if it determines such action to be necessary to protect the public health, safety, or welfare, prescribe water recycling requirements for water that is used, or proposed to be used, as recycled water. Groundwater recharge of freshwater aquifers with recycled water could affect the public health, safety, or welfare; therefore requirements for such use are necessary.
32. Section 13523 further provides **at a minimum**, that the recycling requirements shall include, or be in conformance with, the statewide water recycling criteria established by DHS pursuant to

Water Code Section 13521. DHS adopted revised Water Recycling Criteria (Chapter 3, Division 4, Title 22, California Code of Regulations) that became effective on December 2, 2000. Applicable criteria to this recycling Expansion Phase III Project are prescribed in this Order.

33. Section 60320 of the Water Recycling Criteria provides that DHS' recommendations to the Regional Water Quality Control Boards for proposed groundwater projects and for expansion of existing projects will be made on an individual case basis where the use of recycled water involves a potential risk to public health.
34. Section 60320 further provides that DHS' recommendations will be based on relevant factors of each project, including the following: treatment provided, effluent quality and quantity, spreading area operations, soil characteristics, hydrogeology, residence time, travel time, and distance to withdrawal.
35. Section 13540 of the Water Code requires that recycled water may only be injected into an aquifer used as a source of domestic water supply if DHS finds the recharge will not degrade the quality of the receiving aquifer. To facilitate determination of whether a recharge project will not degrade the receiving groundwater, DHS has developed draft Recycling Criteria for Groundwater Recharge Reuse (latest version is dated December 1, 2004). Compliance with the requirements in the criteria would likely not result in degradation of the receiving groundwater.
36. Prior to submitting its recommendations, DHS reviewed reports and studies on the project including a *West Basin Water Recycling Program Engineering Report* (dated March 1993), a *West Coast Basin Groundwater Flow and Transport Model Post Audit Report – West Basin Recycled Water Program* (dated January 2000), a *West Basin Water recycling Plant West Coast Basin Barrier Project Expansion Phase III Amended Engineering Report* (dated March, 2002), and other supplemental information and responses to the DHS pertaining to the WCBBP. After the review, DHS conducted a public hearing on the West Coast Basin Barrier Expansion Phase III Project on December 10, 2002 in El Segundo, California, to consider the Expansion Phase III Project. There was no testimony in opposition to the Expansion Phase III Project.
37. The Regional Board has consulted with DHS regarding the proposed groundwater recharge with recycled water. DHS submitted its Findings of Fact to the Regional Board, in a letter dated December 15, 2004, to adopt waste discharge and water recycling requirements for the recharge Expansion Phase III Project. The major DHS' recommendations and requirements in the Findings of Facts are shown in Table P5.

Table P5 – Recycling Criteria for Groundwater Recharge Reuse	
Factors	Minimum Requirements
Recycled water contribution (RWC)	The maximum RO recycled water recharged shall not exceed 12.5 MGD (or 75% of total blended water injected) and 17.5 MGD (100% of RO recycled water injected) for the initial operation period and the ultimate stage, respectively. These percentages will be calculated based on the running-monthly-average RO RWC for the preceding period up to 60 months.

Table P5 – Recycling Criteria for Groundwater Recharge Reuse	
Factors	Minimum Requirements
Minimum retention time underground ^[1]	At least 12 months prior to extraction from domestic supply wells.
Horizontal separation requirements ^[1]	At least 2,000 feet between point of recycled water direct injection and domestic water supply wells.
Additional Monitoring well requirements ^[2]	One additional monitoring well was constructed between the Barrier and 3-month travel time from recharge area between the Barrier and the nearest downgradient domestic water Manhattan Beach Well No. 11a.
Total nitrogen ^[3]	The total nitrogen concentration shall not exceed 5 mg/L in the recycled water.
Total organic carbon ^[4]	The total organic carbon concentration of the recycled water shall not exceed 0.5 mg/L divided by the maximum average RWCs, which are 0.75 and 1 for 75% and 100% recycled water projects, respectively.

Footnote:

- [1]. The importance of the retention time and the physical setback is based on the concept that water moving through the aquifers is afforded an extra level of treatment through soil filtration; the longer the water stays underground, the more likely trace organic and inorganic chemicals would be removed through the filtration process. In addition, virus decay with time and a 12-month retention time provides a necessary log reduction in the virus density in the recycled water.
- [2]. The wells shall be installed such that samples can be obtained independently from each aquifer potentially conveying the recharge water. Monitoring well locations shall be determined based on a numerical model, tracer, or other method to determine the estimated underground travel time from the recharge operation to the monitoring well sites. In addition, Construction of the wells shall be such that samples can be obtained independently from each aquifer conveying the recharge water.
- [3]. Total nitrogen shall be defined as the sum of ammonia, nitrite, nitrate, and organic nitrogen concentrations, expressed as nitrogen.
- [4]. Total organic carbon means oxidizable organic carbon measured by an approved laboratory pursuant to subsection 64415(a) using modified Method 5310C, *Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998*, with a reporting level of 0.10 mg/L, and precision and accuracy within plus-and-minus 20 percent.

- 38. Regulatory agencies who issue well permits have adopted policies to prohibit or to consult with the DHS and the District before issuing permits for the construction of new wells for domestic purposes within 2000 feet of the Barrier. On December 19, 1994, the Board of Directors of the District adopted Ordinance No. 94-28 directing the District's staff to recommend against drilling of any new domestic water production wells within 2000 feet of the Barrier.

39. The requirements contained in this Order are in conformance with the goals and objectives of the Basin Plan and implement the requirements of the California Water Code and Water Recycling Criteria.

CEQA AND NOTIFICATION

40. The District authorized preparation of an Initial Study/Proposed Mitigated Negative Declaration by CDM in June 2002, in compliance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et seq.). The Initial Study did not reveal any significant environmental impacts. The Initial Study/Proposed Mitigated Negative Declaration was released for public comment on June 13, 2002, with an advertisement in the Daily Breeze, mailings to interested agencies and circulation through the State Clearinghouse (#2002061102). No negative comments were received and the conclusion that there were no significant environmental impacts was the basis for the Notice of Determination and adoption of a Negative Declaration by the District Board of Directors on August 26, 2002. No further comments or objections were received during the subsequent 45 days. Therefore, the project has completed the notification and review process required by the CEQA.
41. This issuance of water recycling requirements by a regulatory agency for the protection of the environment is exempt from the provisions of Chapter 3 [commencing with Public Resources Code Section 21100, et seq., Division 13, CEQA] in accordance with Section 15308, Title 14, California Code of Regulations.
42. Pursuant to California Water Code section 13320, any aggrieved party may seek review of this Order by filing a petition with the State Board. A petition must be sent to the State Water Resources Control Board, 1001 I Street, Sacramento, California, 95814, within 30 days of adoption of the Order.

The Regional Board has notified the Project Sponsors and interested agencies and persons of its intent to issue Waste Discharge and Water Recycling Requirements for the proposed West Coast Basin Barrier Project – Expansion Phase III Project, and has provided them with an opportunity to submit their written views and recommendations.

The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge and to the requirements.

IT IS HEREBY ORDERED that the West Basin Municipal Water District and the Los Angeles County Department of Public Works shall comply with the following requirements:

I. WASTEWATER TREATMENT AND SOURCE CONTROL

Any noncompliance or violation with these requirements, unless otherwise specifically provided, the Project Sponsors shall notify and submit a report according to Provision VII.5. of this Order.

1. Treatment of wastewater intended for groundwater recharge injection shall be as proposed in the Findings of this Order and shall consist of preliminary and primary sedimentation, secondary biological treatment, and advanced wastewater treatment

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(comprising of automatic strainer, MF, RO, AOP, post-decarbonation, lime, or other stabilization). Replacement of equipment or major modifications to the treatment process as described in this Order and in the *West Basin Water Recycling Program Engineering Report* (March 1993) and the *West Basin Water recycling Plant West Coast Basin Barrier Project Expansion Phase III Amended Engineering Report* (May 2002), both prepared by the District, and other supplemental information on this project shall be subject to review and approval by DHS and this Regional Board.

2. There shall be no bypassing of the treatment processes described in this Order, except for post-decarbonation and lime stabilization as needed for pH adjustment.
3. The District shall operate the SCIP for the proactive source control approved by the DHS in October 2005, in such a manner as to minimize the likelihood of contamination of the wastewater with toxic chemicals that will be passed through the treatment system. If the DHS identifies any contaminants that may pose a risk of contamination to a drinking water supply, it may designate those contaminants for inclusion in the above program's requirements for the West Basin Water Recycling Plant to minimize the possibility of these contaminants entering the source water to the Expansion Phase III Project. The SCIP shall include, but is not limited to the following elements:
 - A. Monitoring of influent from Hyperion;
 - B. A program for maintaining an inventory of compounds discharged into the City's wastewater collection system so that new compounds of concern can be evaluated rapidly;
 - C. Spike or seed studies on full scale demonstration unit being constructed to test for constituents of concern determined by the DHS and this Regional Board;
 - D. Investigation program focused on the identified target compounds and their potential ability to persist through the treatment systems;
 - E. Cooperative Memorandum of Agreement with the City to address the source(s) of persistent constituents of concern, including evaluation of all chemicals and parameters listed in Attachment 1, and develop an comprehensive outreach program; and,
 - F. Time schedule for implementation of the preceding elements.

All above elements must be implemented prior to increasing the monthly running average RO RWC to 100 percent. The agreement shall become effective 90 days after review and approval by the Regional Board Executive Officer and DHS.

II. WEST BASIN WATER RECYCLING PLANT INFLUENT SPECIFICATIONS

For purposes of this Order, the Plant includes automatic strainer, MF, RO, AOP, post-decarbonation, lime stabilization treatment. The influent to the Plant shall be secondary

treated effluent generated at Hyperion and shall, at all times, be adequately oxidized. The influent shall be considered adequately oxidized when it meets the following characteristics, based on monthly average:

1. The Carbonaceous Biochemical Oxygen Demand value (CBOD₅ 20°C) does not exceed 25 mg/L. Compliance shall be determined monthly using the average of the analytical results of all 24-hour composite samples taken at least weekly during the month.

In a letter dated May 12, 2000, the DHS has endorsed the District's proposal that the influent limit should be based on CBOD instead of BOD.

2. The Total Suspended Solids (TSS) concentration does not exceed 30 mg/L. Compliance shall be determined monthly using the average of the analytical results of all 24-hour composite samples taken daily during the month.

III. RECYCLED WATER SPECIFICATIONS

1. Recycled water used for injection is wastewater that has received preliminary, primary, and secondary treatment, followed by automatic strainer, MF, RO, AOP, post-decarbonation, lime stabilization.
2. Recycled water used for injection shall be, at all time, adequately oxidized, filtered, disinfected, and subject to organics removal by RO and UV treatment. There shall be no bypassing of any treatment process, except for decarbonation and lime addition, which provide pH adjustment as required for stabilization in the above statement of Section III.1.
3. Turbidity - The turbidity of the reverse osmosis product water prior to disinfection shall not exceed 0.2 NTU more than 5 percent of the time within a 24-hour period and 0.5 NTU at any time. The turbidity shall be continuously measured with at least one reading every 1.2 hours and recorded. The results of the daily average turbidity determinations shall be reported quarterly to DHS and the Regional Board. Compliance with the daily average turbidity shall be determined based on using the recorded turbidity taken at intervals of no more than 1.2 hours over a 24-hour period. Should the continuous turbidity meter and recorder fail, grab sampling at a minimum frequency of 1.2 hours may be substituted for a period of up to 24 hours. When the turbidity requirements are exceeded, delivery of recycled water shall be suspended until such time the cause of the exceedance has been identified and corrected. Any failure to meet the turbidity performance requirements shall be reported to the DHS and the Regional Board in the next report.
4. Total Organic Carbon
 - A. The total organic carbon (TOC) of the recycled water shall not exceed 0.5 mg/L divided by the maximum average RWC.
 - B. Each week a grab sample of RO recycled water shall be collected for TOC analysis. Determination of compliance shall begin as soon as four samples have

been collected, averaging all available samples up to 20 samples. After that time, compliance with this requirement shall be determined as the most recent 20 samples calculated monthly. In the event of a violation of the TOC requirement, the Project Sponsors shall suspend recharge until the requirement is met. Within 7 days of the suspension, the Project Sponsors shall notify DHS and this Regional Board.

If the average of the last 4 samples exceeds the TOC limit, the Project Sponsors shall submit a report within 60 days to DHS and this Regional Board describing the cause(s) of the exceedance and the corrective actions implemented and/or to be implemented to avoid future exceedances.

5. Total Nitrogen

- A. The total nitrogen concentration shall not exceed 5 mg/L divided by the maximum average RWC.
- B. The total nitrogen shall be defined as the sum of ammonia, nitrite, nitrate, and organic nitrogen concentrations, expressed as nitrogen.
- C. The weekly average of total nitrogen concentration in the recycled water, or the blend with diluent* water if blended before injection, shall not exceed 5 mg/L as nitrogen, based on results of analysis of 2 grab or 24-hour composite samples per week, obtained at least 3 days apart. The laboratory shall complete each analysis with standard methodologies/US EPA holding times. If sum of ammonia, nitrate plus nitrite results exceed 2.8** mg/L, then total Kjeldahl nitrogen (TKN***) must be analyzed within 48 hours. If the results of the total nitrogen concentration in any single sample exceed 5 mg/L as nitrogen, the laboratory must report the result to the District within 72 hours of completion of the results. If the average of two consecutive samples exceeds 5 mg/L as nitrogen, the District shall:
 - a. Investigate the cause and make appropriate corrections;
 - b. Within 24 hours of being notified by the laboratory, notify DHS and the Regional Board and submit a report according to Provision VII.5. of this Order; and,
 - c. Suspend injection of the recycled water until appropriate corrections are made to reduce total nitrogen levels to below 5 mg/L, if the average of all samples collected over the ensuing two-week period exceeds 5 mg/L.
 - d. Suspend injection of the recycled water until appropriate corrections are made to reduce total nitrogen levels to below 5 mg/L, if more than 25% of all samples collected over the ensuing two-week period exceeds 10 mg/L.
 - e. Submit a report to the DHS and the Regional Board within 30 days of conclusion of enhanced groundwater monitoring, summarizing the results of the enhanced groundwater monitoring program and describing the causes of

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the exceedance and corrective actions taken to avoid future violations of these requirements.

*: Diluent water is water that **is not** treated wastewater and that is used to supplement the recycled water in the Barrier. In addition, diluent water must be equivalent to potable water quality and be approved for use by the DHS and the Regional Board.

**: The nitrogen effluent data between 10/2003 and 09/2005 provided by the District show nitrate: 0.10-0.69 mg/L, nitrite: ND, TKN: 1.0-2.2 mg/L, ammonia: 0.23-2.3 mg/L, total organic nitrogen: ND-1.13 mg/L, and total nitrogen: 0.69-2.48 mg/L. In general, the nitrogen concentrations in the RO recycled water are very low. Regional Board staff suggest that the highest concentration TKN of 2.2 mg/L ever detected should be deducted from total nitrogen concentration of 5 mg/L. This, somehow, ensures the water quality of the RO recycled water and blended water.

***: The DHS is currently awaiting another revision of the Draft Groundwater Recharge Reuse Regulations and has noted that they may be addressing TKN turn around time issue for systems with low levels of nitrate, nitrite and ammonia. The District shall send a letter to the Regional Board Executive Officer to request modifications the permit in order to match the TKN Language in the next draft regulation version.

- D. Diluent water shall be monitored quarterly for nitrate and nitrite. Within 48 hours of being informed by the laboratory of a nitrate and/or nitrite result greater than a maximum contaminant level, a confirmation sample shall be collected and analyzed. If the average of the initial and confirmation samples exceeds a maximum contaminant level:
- a. The District shall notify the DHS and Regional Board within 48 hours of receiving the confirmation sample result.
 - b. The causes of the exceedance shall be investigated and appropriate corrections shall be made.
 - c. Each week the District shall collect and analyze two grab or 24-hour composite samples at least 3 days apart.
 - d. If the average of all samples collected over the ensuing 2-week period exceeds the applicable criterion, recharge of the recycled water shall be suspended until appropriate corrections are made.
6. Recycled water shall be, at all times, adequately disinfected. In the event that the recycled water exceeds any of the following, based on daily grab samples, the Project Sponsors shall suspend injection of recycled water until such time the cause of the failure has been identified and corrected. Any failure to meet the total coliform performance requirements shall be reported to the DHS and the Regional Board in the

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next monthly report.

- A. A 7-day median of 2.2 most probable number (MPN) per 100 milliliters for two consecutive days;
 - B. 23 MPN per 100 milliliters in more than one sample in any 30-day period prior to injection; and,
 - C. 240 MPN per 100 milliliters in any sample prior to injection.
7. The conductivity of the RO treated recycled water upstream of the UV system shall not exceed 300 $\mu\text{S}/\text{cm}$ at any time. The conductivity of the RO treated recycled water shall be continuously measured with an online conductivity meter and recorder. At any time the conductivity limit is exceeded, the Plant will be shut down automatically and result in the suspension of injection of recycled water until such time that the cause of the high-conductivity condition has been identified and corrected.
8. The pH of the product water for injection or recharge water shall be, at all times, within the range of 6.5 to 8.5 pH units. Excursion from this range shall not be considered a violation provided the duration is not more than 10 minutes in a 24-hour period, and pH shall at all times be within 6 to 9.
9. Concentrations of contaminants in the recycled water shall, at all times, not exceed the following DHS' MCLs for drinking water ~~and limits for Chemicals of concern to the Regional Board~~. These limits are prospective, new state and federal MCLs will be added as they are adopted. Compliance with primary MCLs ~~and limits for Chemicals of Concern to the Regional Board~~ shall be determined on the basis of a running quarterly average by analyzing a 24-hour composite or grab sample, calculated each quarter using the previous four quarters of data. Compliance with secondary MCLs shall be determined annually based on a representative grab sample or the average of samples collected during the year, if more than one. In case of a violation of any of either primary, or secondary MCLs, the Project Sponsors shall notify and submit a report according to Provision VII.5. of this Order.
- A. Primary MCLs specified in Chapter 15, Domestic Water Quality and Monitoring, Title 22, California Code of Regulations (CCR):
 - a. Inorganic chemicals in Section 64431, Table 64431-A, except for nitrogen compounds, Attachment A-2 of this Order;
 - b. Radionuclides in Section 64443, Table 4, Attachment A-3 of this Order;
 - c. Regulated organic chemicals in Section 64444, Table 64444-A, Attachment A-4 of this Order; and,
 - B. Primary MCLs for disinfection byproducts specified in Chapter 15.5, Article 2, Section 64533, Table 64533-A, Attachment A-5 of this Order

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C. Secondary MCLs in Chapter 15, Domestic Water Quality and Monitoring, Title 22, CCR, Table 64449-A, Attachment A-7 of this Order. The Corrosivity Index in Table 64449-A is not applicable for 100% recycled water. The Corrosivity Index after adding lime to the recycled water should be within ± 0.5 Langelier Saturation Index (LSI).

D. Any new Federal or State MCL upon adoption.

~~E. Concentrations of Chemicals of Concern to the Regional Board shall not exceed the limits outlined on Attachment A-8 of this Order.~~

10. Recycled water shall not contain lead in concentrations greater than 0.015 mg/L.
11. Recycled water shall not contain copper in concentrations greater than 1.0 mg/L (2nd MCL), which is the most stringent drinking water standard.
12. Concentrations of mineral constituents in the recycled water injected into the Barrier shall not exceed the limits identified in Table P6.

Table P6 – Concentrations of Mineral Constituents in the Recycled Water Injected into the <u>West</u> Coast Barrier		
Constituent	Unit	Limit
Total dissolved solids	mg/L	800
Sulfate	mg/L	250
Chloride	mg/L	250
Boron	mg/L	1.5

13. Compliance with primary and secondary MCLs will be determined as described in parts A and B below. Should an exceedance of permit limits occur, the District shall investigate the cause(s) and submit a report to DHS and this Regional Board within 60 days of the exceedance describing the cause(s) and remedial and/or corrective actions implemented or to be implemented with a time schedule.
 - A. Compliance with primary MCLs referenced above for inorganic chemicals, radionuclides, organic chemicals, and disinfection byproducts and action levels for lead and copper, shall be based on the running-quarterly average, calculated each quarter using the previous four quarters of data.
 - B. If the single sample result (or average of samples collected during the year, if more than one) exceeds a secondary maximum contaminant level.

14. Recycled water temperature shall not exceed 100°F at any time.

IV. RECYCLED WATER CONTRIBUTION (RWC), RETENTION TIME AND HORIZONTAL SEPARATION REQUIREMENTS

1. During the initial operating period, the total volume of RO recycled water recharged by injection shall not exceed 12.5 MGD (approximately 14,000 AFY) or 75% RO RWC.

- Following the successful completion of the initial operating period below, the District may increase the monthly running average RO RWC to 100% or 17.5 MGD (approximately 19,600 AFY), if the following are documented in a report submitted to and approved by the DHS:
- A. The initial operating period shall be defined by injection of blended water that has reached at least one barrier monitoring well for at least one year with an average RWC of at least 60% RO recycled water and the District has been in compliance with the existing DHS-specified maximum average RWC of 75%;
 - B. Operation, monitoring, and compliance data;
 - C. RO recycled water quality produced at the Plant has consistently met all requirements;
 - D. Appropriate construction and siting of the monitoring well used in the demonstration have been validated;
 - E. An updated engineering report;
 - F. Review and assessment of the increased RO RWC by a scientific peer advisory panel;
 - G. Water quality data collected at the WB-1 monitoring well used in the demonstration as follows:
 - a. Meets all primary drinking water standards specified in Section III.9;
 - b. Meets the total nitrogen criteria specified in Section III.5; and,
 - c. Indicates that the non-regulated contaminants, including TOC and those specified in Tables 64449-A and 64449-B, total coliforms levels, and any endocrine disrupting chemicals, pharmaceuticals, or other water quality constituents specified by the DHS based on the results of the receiving water monitoring are not increasing over the levels in the RO recycled water due to the recharge operation.
2. Diluent for the Barrier shall be imported treated drinking water.
3. Compliance of the RWC and total volume of RO recycled water injected shall be as follows:
- A. During the initial operating period, the RWC shall be on a monthly running average basis over a time period up to a maximum of the preceding 60 months. Once a month, the average RWC shall be calculated during this period by dividing the total volume of recycled water injected during the preceding months by the total volume of injection during that period.

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- B. The total volume of RO recycled water injected shall be based on a monthly average.

For the initial operating period, if the average receiving water contribution exceeds 75 percent, or the total volume of RO recycled water injected exceeds 12.5 MGD (initial period) and 17.5 MGD (ultimate period), the District shall notify DHS and the Regional Board within 7 days and submit a report within 60 days of knowledge of exceedance according to Provision VII.5.

4. Any recycled water that may already be present in the groundwater because of on-going project related activities should be accounted for as a part of the total amount of recycled water in calculating the percent of recycled water in an aquifer.
5. Upon approval by the DHS and the Regional Board, the District shall implement the groundwater and tracer monitoring programs to track the movement of recycled water through the aquifer systems. After the first year of operation and annually thereafter, using the results of the groundwater and tracer monitoring programs, the District shall determine the amount of recycled water entering each individual aquifer, where recycled water is, the RWC and time of travel of recycled water.
6. Recycled water shall be retained underground for a minimum of 12 months, prior to extraction at any domestic water supply well.
7. A minimum horizontal separation between the point where recycled water or blend of recycled water and diluent water is injected and a domestic water supply well shall be at least 2,000 feet. No new domestic drinking water wells shall be allowed to extract from the Lower San Pedro aquifer and all of the other aquifers in the area between 2,000 feet from the Barrier. The District shall coordinate with the DHS against issuing permits for new domestic water production wells within 2,000 feet from the Barrier.

V. ULTRAVIOLET LIGHT SPECIFICATIONS

1. UV disinfection shall comply with the “Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse” (May 2003) published by the National Water Research Institute, which specifies for RO permeate that:
 - A. The design UV does shall be at least 50 millijoules per square centimeter (mJ/cm^2) under maximum day flow;
 - B. The effluent turbidity shall be equal to or less than 0.2 NTU 95% of the time, and not to exceed 0.5 NTU at any time; and,
 - C. The RO permeate UV transmittance shall be 90% or greater at 254 nm.
2. Based on October 29, 2004 DHS’ Memorandum to the Regional Board, the District shall:
 - A. Establish quartz sleeve cleaning frequencies as defined in the OMP Plan that ensure the minimum required UV does delivery is consistently met;

- B. Use a fixed cleaning frequency to define the quartz sleeve cleaning intervals when high organic matter is present as defined in the OMM Plan; and,
- C. Not use the presence of coliform organisms in the RO-treated effluent as a factor to determine cleaning intervals.

The above cleaning frequencies shall be established on a site-specific basis in consultation with the DHS.

- 3. The District shall perform fouling tests each month during the first year of operation, if notable reduction in intensity, and submit results of the testing to the DHS and Regional Board for review and approval and shall be included in the updated version of the PMM Plan that following year.

VI. GROUNDWATER MONITORING WELLS AND PROGRAMS

- 1. The Project Sponsors establish an additional, as a minimum, 3-month groundwater monitoring well WB-1 at location between the Barrier injection wells and the nearest domestic water supply Manhattan Beach Well No. 11a, in compliance with Minimum Retention Time and Horizontal Separation Requirements of Finding 37. Samples shall be taken independently from for 200-Ft, Silverado, and Los San Pedro aquifers, respectively.
- 2. The groundwater monitoring program shall be periodically reviewed and modified, based on results of the monitoring program. Changes to the monitoring program, including monitoring well locations, shall be approved by the Regional Board and the DHS.

VII. PROVISIONS

- 1. The Project Sponsors shall delineate the responsible party or parties to comply with the specific requirements in this Order including the Monitoring and Reporting Program (see MRP). This information shall be provided, in writing and signed by the two Project Sponsors, to the Regional Board Executive Officer within 45 days of the effective date of this Order. This delineation will facilitate effective communication between the Project Sponsors and the Regional Board. However, the Project Sponsors are individually, and collectively, responsible for compliance with this Order.
- 2. Any injection or discharge of recycled water, or a blend of recycled water and diluent water, at any point(s) other than the 153 wells in the Barrier and except as provided for in Provision VII.8 of this Order, is prohibited and constitutes a violation of this Order.
- 3. The recharge of recycled water into the Barrier shall not cause degradation of the groundwater basins. If at any time, the injection of recycled water is determined to be adversely impacting the receiving groundwater, the injection of the recycled water shall be suspended immediately but not later than 24 hours of knowledge of the adverse impact. The District shall notify DHS and the Regional Board according to Provision VII.5.

- RO recycled water that does not meet permit requirements for the injection wells but meets the requirements for discharge from Hyperion to the Pacific Ocean can be discharged directly to the Pacific Ocean under the provisions of the Hyperion NPDES. If RO recycled water does not meet NPDES permit requirements for the Hyperion discharge to the ocean, the Plant shall be shut down and any off-spec water in storage shall be sent to Title 22 treatment train for treatment.
4. If the District or the DHS determines that a well is no longer usable as a safe, wholesome, and potable source of drinking water because it exceeds drinking water quality regulations, and if the cause of this condition is a result of the recharge Expansion Phase III Project, the District shall within 24 hours notify the owner of the well to discontinue using the well and shall implement the approved plan for providing an alternative source of domestic water supply pursuant to District Resolution No. 3-04-800, or a DHS approved treatment mechanism. The District shall also notify as soon as possible the DHS and the Regional Board according to Provision VII.5.
5. For any violation of requirements in this Order, the District shall notify DHS and the Regional Board within 24 hours of knowledge of the violation either by telephone or electronic mail. This notification shall be followed by a written report within 7 days of notification, unless otherwise specified in this Order. The report shall include, but not limited to, the following information, as appropriate:
- A. Nature and extent of the violation;
 - B. Date and time: when the violation started, when compliance was achieved; and, when injection was suspended and restored, as applicable.
 - C. Duration of violation;
 - D. Cause/s of violation;
 - E. Corrective and/or remedial actions taken and/or will be taken with time schedule for implementation; and
 - F. Impact of the violation.
6. After a year of injecting recycled water into the Barrier, the District shall update the OMM Plan and submit it to DHS for review and approval. Significant changes to the OMM Plan must be approved by DHS prior to implementation. The District shall furnish the Regional Board with a copy of the approved OMM Plan within 30 days of DHS approval. The Plant shall be operated in accordance with the approved OMM Plan.

The OMM Plan shall cover critical operational parameters to include routine testing procedures for the automatic strainers, MF, RO, and AOP, optimization of the UV dose for disinfection and reduction of light-sensitive contaminants, and all treatment processes, maintenance and calibration schedules for all monitoring equipment, process alarm set points, and response procedures for all alarms in each treatment process of the Plant, including criteria for diverting recycled water if water quality requirements are

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- not met, start-up, emergency response and contingency plans. During the first year of operation of the Expansion Phase III Project, all treatment processes shall be optimized to reduce contaminant levels. The results of these initial optimization efforts shall be incorporated into the updated OMM Plan. The OMM Plan shall include staffing levels with applicable certification levels for Expansion Phase III Project operations personnel. Significant changes in the operation of any of the treatment processes shall be reported to the DHS and the Regional Board. Significant changes in the approved OMM Plan, which may include provisions to comply with Condition 4 in DHS' December 15, 2004 Findings of Fact, must be approved by the DHS and the Regional Board prior to instituting changes.
7. For any material change or proposed change in character, location or volume of recycled water, or its uses, the District shall submit at least 120 days prior to the proposed change an engineering report or addendum to the existing engineering report to the Regional Board and DHS [pursuant to California Water Code, section 13522.5 and CCR, Title 22, Section 60320.080] for approval. The Engineering Report shall be prepared by a qualified engineer and geologist who are experienced in groundwater recharge, both registered or certified in the State of California. However, replacement or addition of injection wells to the Barrier will not require a report of material change, or filing of a new Report of Waste Discharge, provided:
- A. the additional injection capacity does not violate any requirement in this Order;
 - B. at least 30 days prior to installation, the District submit in writing the purpose and location of the wells to DHS and the Regional Board; and,
 - C. within 90 days after the installation of the wells, the LACDPW submit in writing the complete geologic and electrical logs and as-built construction diagrams of the injection wells to DHS and the Regional Board.
8. This Order includes "Standard Provisions Applicable to Waste Discharge Requirements" (Standard Provisions - Attachment W). In the event of conflict between provisions stated herein and the Standard Provisions, the provisions stated herein prevail.
9. This Order includes Monitoring and Reporting Program No. CI-7485 (MRP). In the event of conflict between provisions stated in the MRP and the Standard Provisions, the provisions in the former prevail.
10. The District shall provide an Annual Report described in the MRP to this Regional Board, DHS, and all downgradient public drinking water systems of production wells.
11. In order to limit the presence of contaminants in the recycled water including regulated and unregulated contaminants identified in Attachments A-2 to A-5, and A-7, and to A-9, the District shall, for the purposes of protecting public health, ensure that its equipment and facilities for treatment operate at levels of peak performance. In addition, LACDPW also needs to ensure that its equipment and facilities for recharge shall operate at levels of peak performance.

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12. Every five years, the District shall update the engineering report and submit it to this Regional Board and DHS for approval.
13. The requirements in this Order do not exempt the Project Sponsors from complying with any other laws, regulation, or ordinances, which may be applicable. This Order does not legalize Hyperion, the Plant, or the Barrier, and it leaves unaffected any further constraint on the use of recycled water that may be contained in other statutes or required by other agencies.
14. This Order does not alleviate the responsibility of the Project Sponsors to obtain other necessary local, State, and Federal permits to construct facilities necessary for to comply with this Order; nor does this Order prevent imposition of additional standards, requirements, or conditions by any other regulatory agency.
15. An independent advisory panel* shall provide scientific peer review prior to 100% recycled water project. Members of the advisory panel, as a minimum, shall have expertise in the fields of toxicology, engineering geology or hydrogeology, microbiology, chemistry, and engineering with experience in the fields of wastewater treatment and public water supply. The engineer and the engineering geologist or hydrogeologist shall be registered in California.

*: An independent advisory panel, not necessarily the same one as listed in this paragraph but maybe a similar group, meets on a periodic basis to review the annual reports and five year reports to determine how the project is performing based on the recommendations from the advisory panel and the DHS Groundwater Recharge Reuse Draft Regulations and the Order issued by the Regional Board.
16. Prior to onset of operation, the District shall have in place a resolution adopted by its governing board that it will be responsible for developing a plan for providing an alternative source of domestic water supply, or a DHS approved treatment mechanism, to any user whose domestic water well is found to violate California drinking water quality regulations as a direct result of the Expansion Phase III Project, or when the DHS makes an analysis and finding that the domestic water well is unsuitable for human consumption as a direct result of the Expansion Phase III Project. Such alternative sources can include water deliver for blending of the producing well, imported water, water produced at a well head treatment plant, and water produced from new wells. The District shall notify the DHS in a timely manner, when such a determination is made.

VIII. GENERAL REQUIREMENTS

1. A copy of this Order shall be maintained at Hyperion, the Plant, and the District offices so that this Order is available at all times to operating personnel.
2. The Project Sponsors shall, at all times, properly operate and maintain all treatment facilities and control systems, transmission and injection facilities and related appurtenances, which were constructed and installed or used by the Project Sponsors to achieve compliance with the requirements of this Order. Proper operation and maintenance includes: effective performance testing, adequate funding, adequate

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- operator staffing and training, and adequate laboratory and process controls (including appropriate quality assurance and control procedures.
3. A Wastewater Treatment Plant Operator, or a Water Treatment Plant Operator, with at least Grade V certificate shall inspect the Plant on a regular basis to ensure that all unit treatment processes are working properly and that the recycled water from the Plant is in compliance with this Order.
4. Supervisors and operators of Plant shall possess a certificate of appropriate grade as specified in Title 23, California Code of Regulations, Section 3680 or subsequent revisions.
5. The District shall enter into a legal agreement (MOA) with the City of Los Angeles that implements the District Source Control Implementation Plan (SCIP) as approved by the DHS. The SCIP shall include how the District shall conduct:
- A. An assessment of the fate of the specified contaminant compounds through the wastewater and recycled water treatment systems.
- B. A source investigation and monitoring program focused on the specified contaminants and their potential ability to persist through the treatment systems.
- C. A comprehensive outreach program to industrial, commercial and residential communities within the sewage collection agency's service area to manage and minimize the discharge of compounds of concern at the source.
- D. A proactive program for maintaining an inventory of compounds discharged into the wastewater collection system so that new compounds of concern can be evaluated rapidly.
6. The District shall provide standby or emergency power facilities and/or sufficient storage or diversion capacity or other means such that in the event of power outages or plant upset or other causes, the discharge or injection of raw or inadequately treated wastewater does not occur.
7. The District through a comprehensive monitoring program (see MRP) should continue to assure that the recycled water produced at the Plant for injection into the groundwater in the Barrier is not contaminated with toxic chemicals of industrial origin.
8. Adequate facilities shall be provided to protect Hyperion, the Plant, and Barrier injection system from damage by storm flows and runoff.
9. Neither the wastewater treatment nor injection of recycled water shall cause a condition of pollution or nuisance as defined in section 13050 of the California Water Code.
10. The injection of recycled water shall not result in earth movement in geologically unstable areas.

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11. Injection of recycled water shall not impart tastes, odors, color, foaming, or other objectionable characteristics to receiving groundwater.
12. Injection of recycled water shall not cause a violation of any applicable water quality standard for receiving groundwater adopted by this Regional Board or the State Board.
13. In the event of any change in name, ownership, or control of Hyperion, the Plant, and the Barrier injection facilities, the Project Sponsors shall notify DHS and this Regional Board of such change and shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to the Regional Board at least 30 days prior to the change.
14. The Project Sponsors shall maintain all records required under this Order that includes the MRP for at least 5 years.
15. After notice and opportunity for a hearing, this Order may be modified, revoked, reissued, or terminated for cause, which include, but is not limited to:
 - A. Failure to comply with any condition of this Order;
 - B. Endangerment of human health or the environment resulting from the permitted activities in this Order;
 - C. Obtaining this Order by misrepresentation, or failure to disclose all relevant facts;
 - D. Acquisition of new information, which could have justified the application of different conditions if known at the time of Order adoption;
 - E. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.
16. The Project Sponsors shall furnish, within a reasonable time, any information the Regional Board or the DHS may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order. The Project Sponsors shall also furnish to the Regional Board or the DHS, upon request, copies of any records required to be kept under this Order.
17. Filing of a request for modification, revocation, reissuance, or termination of the Order, or a notification of planned changes or anticipated noncompliance, does not stay any condition of this Order.
18. DHS's December 15, 2004, West Basin Water Recycling Plant, West Coast Basin Barrier Project Expansion Phase III - Findings of Fact (Attachment A-10) are incorporated herein and made part of this Order.
19. All pipelines and valves are installed with purple identification tapes or purple polyethylene vinyl wraps according to the American Water Works Association (AWWA) California-Nevada Section guidelines.

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20. The District shall furnish a copy of all approved documents by the DHS such as SCIP to the Regional Board.

IX. REOPENER

| This Order may be reopened to include the most scientifically relevant, and appropriate limitations or other requirements for this groundwater direct injection project.

X. RESCISSION

| Order No. R4-2006-000997-069, adopted by this Regional Board on ~~May 12~~January 19, 2006+1997, is hereby rescinded, except for enforcement purposes.

XI. EFFECTIVE DATE OF THE ORDER

This Order takes effect upon its adoption.

| I, Jonathan S. Bishop, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order Adopted by the California Regional Water Quality Control Board, Los Angeles Region on ~~January 19~~September 14, 2006.

Jonathan S. Bishop
Executive Officer

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